

## Herb Bedding Plants Grown in Greenhouses

### Some selected insecticides and miticides for use for herb bedding plants

Insecticide	Use Site	Target Pests	Labeled Crops	Comments
Azadirachtin Group 18B  (Aza-Direct) 4 hr. REI Organic product	G, O	Aphids, beetles, caterpillars, weevils, thrips, true bugs, leafhoppers, whiteflies, scales, mealybugs, leafminers, fungus gnat larvae	Herbs and spices	Insect growth regulator for immature stages of insects. Repeat applications needed. Repels some insects and can be used as antifeedant.
(AzaGuard) 4 hr. REI Organic product	G, O	Leafminers, soft scales, mealy bugs, thrips, aphids, fungus gnats, shore flies (larvae), whiteflies, caterpillars, beetles, weevils		
(Azahar) 4 hr. REI Organic product	G, O	Beetles, weevils, thrips, true bugs, leafhoppers, whiteflies, aphids, leafrollers, cutworms, loopers, fungus gnats, shore flies		
(AzaSol) 4 hr. REI	G,O	Whiteflies, leafminers, scale, mealybugs, thrips, aphids, caterpillars		
(Azatrol) 4 hr. REI Organic Product	G, O	Thrips, leafhoppers, whiteflies, aphids, cutworms, loopers		
(Azatin XL) 4 hr. REI	G, O	Aphids, armyworms, beetles, caterpillars and loopers, cutworms, fungus gnat larvae, shore fly larvae, leafhoppers, leafminers, mealybugs, thrips, whiteflies		

(Molt-X) 4 hr. REI Organic Product	G, O	Whiteflies, leafminers, soft scales, mealybugs, thrips, aphids, fungus gnats, caterpillars, beetles, weevils		
(Ornazin 3% EC) 12 hr. REI	G,O	Aphids, armyworms, beetles, cutworms, fungus gnat larvae and shore flies, leafminers, leafrollers, leafhoppers, loopers, mealybugs, soft scales, thrips, weevils, whiteflies		
(Neemix 4.5) 4 hr. REI Organic product	G, O	Whiteflies, thrips, mealybugs, leafminers, loopers, caterpillars, armyworms, aphids		
Azadirachtin & Pyrethrins (Azera) 12 hr. REI Group 18B and Group 3A Organic product	G, O	Aphids, caterpillars, fungus gnats, leafhoppers, leafminers, whiteflies, beetles, weevils	Herbs and spices	Works by contact or by ingestion. Quick knockdown.
<i>Bacillus thuringiensis</i> subsp. <i>aizawai</i> (XenTari) 4 hr. REI Group 11B Organic product	G, O	Armyworms, <i>Heliothis</i> (corn earworm), loopers, saltmarsh caterpillars	Herbs, spices and leafy herbs	Stomach poison that must be eaten by target insect to be effective. Treat when larvae are young. Larvae must be actively feeding on treated, exposed plant surfaces. Insect stops feeding and dies from 1 to 5 days later.
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> (DiPel Pro DF) 4 hr. REI Group 11B Organic product	G, O	Caterpillars	Herbs and spices	Stomach poison that must be eaten by target insect to be effective. Thorough coverage is needed. Treat when larvae are young. Insect stops feeding and dies 1 to 5 days later.
<i>Beauveria bassiana</i> (Botanigard ES and WP) 4 hr. REI	G, O	Aphids, thrips, whitefly, psyllids, mealybugs, plant bugs, leafhoppers	Herbs and spices	Contact insecticide. Thorough coverage is needed. Active ingredient is an insect killing fungus. To be effective needs relative humidity greater than 70% and 65-75 °F for 8-10 hours. Most effectively used when insect populations are

(Mycotrol O) 4 hr. REI Organic product				low. Repeat applications may be needed.
Cottonseed Oil, Clove Oil, Garlic Oil (GC- Mite) EPA Exempt Group NC Organic product	G, O	Mites, thrips, aphids	Exempt from food tolerances	Works by contact. Thorough coverage needed. Repeat applications may be needed.
Horticultural Oil (Ultra-Pure Oil) 4 hr. REI Group NC	G, O	Aphids, mites, beetle larvae, leafminers, thrips, leafhoppers, whiteflies	Herbs and spices	Works by contact. Thorough spray coverage is needed. Foliar injury may occur if applied during humid conditions. See label for information on plant safety.
Insecticidal Soap Potassium Salts of Fatty Acids (M-Pede) 12 hr. REI Group NC Organic product	G, O	Aphids, caterpillars, leafhoppers, lace bugs, leafminers, mealybugs, mites (spider and broad), scales, thrips, whiteflies	Herbs and spices	Works by contact. Good coverage is needed. Short residual activity. See label for information on plant safety.
<i>Isaria fumosoroseus</i> (formerly <i>Paecilomyces</i> ) (Preferal) 4 hr. REI Group NC Organic Product (PFR-97 20% WDG) 4 hr. REI Organic Product	G	Whiteflies, aphids, thrips, spider mites, leafminers, mealybugs, plant bugs	Herbs and spices	Contact insecticide. Active ingredient is an insect killing fungus. See label for rates. To be effective, needs relative humidity 80% or greater for 8 to 10 hours. Thorough coverage of all plant parts is important.
Neem Oil (Triact 70) 4 hr. REI Organic product	G, O	Aphids, leafhoppers, mealybugs, mites, scale	Herbs and spices	Works by contact. Thorough coverage needed. See label for information on plant safety.

Nematodes (Entomopathogenic) ( <i>Steinernema carpocapsae</i> ) (Millenium) Exempt from REI	G, O	Shore flies (larvae)		Available in packages. Apply to moist growing media at temperatures between 55 -86F. Remove screens and filters from sprayers. Refer to label for application rates.
Nematodes (Entomopathogenic) ( <i>Steinernema feltiae</i> ) (NemaShield, Nemasys, Scanmask) Exempt from REI	G, O	Fungus gnat larva, thrips pupae		Available in packages. Nematodes move through media on a film of water and release a bacterium that reproduces within and kills target pest. Water into soil surface. See label for application directions.
Nematodes ( <i>Steinernema feltiae</i> ) (Nemasys) Exempt from REI	G,O	Thrips (immatures)		Apply to foliage for control of immature nymphal stages of thrips. Efficacy may be variable depending upon relative humidity, temperature, concentration and frequency of applications and life stage present. Refer to label for information on application directions and treatment rates.
Pyrethrins (PyGanic EC) 12 hr. REI Group 3A Organic product	G, O	Many including aphids, caterpillars, fungus gnats (adults), thrips, leafhoppers, mealybugs, whiteflies	Herbs and spices	Provides rapid knockdown of pests.
Pyrethrins & PBO (piperonyl butoxide) (Pyreth-It Formula 2) 12 hr. REI Group 3 and 27A	G, O	Aphids, caterpillars, fungus gnats (adults), lacebugs, leafhoppers, mealybugs, thrips, whiteflies	Herbs and spices	Contact insecticide.
Pyronyl Crop Spray (Pyrethrins & PBO ) 12 hr. REI Group 3 and 27A	G, O	Aphids, caterpillars, fungus gnats, leafhoppers, leafminers, mealybugs, plant bugs, thrips, whiteflies	Herbs and spices	Contact insecticide.

Sucrose Octanate (SucraShield) 48 hr. REI Organic product	G, O	Aphids, caterpillars, leafhoppers, mites, thrips, whiteflies	Herbs and spices	Works by contact with limited residual activity. Sucrose octanoate esters are produced in the hairs of tobacco leaves.
Spinosad (Entrust) 4 hr. REI Group 5 Organic product	O	Insect suppression of caterpillars, thrips	Herbs	Spinosad is derived from the fermentation of a naturally occurring soil microorganism. Follow resistance management guidelines on label.

- G =Greenhouse, \*\* O = Outdoor , NC = not classified to mode of action group
- By L. Pundt (University of Connecticut) and T. Smith (University of Massachusetts), 2005. Updated 2013.
- Resistance Groups (number and letter) indicate products with a common mode of action based on the Insecticide Resistance Action Committee (IRAC) guidelines at <http://www.irac-online.org/>. For multiple applications to one crop, select products from different resistant groups.

This information is supplied here with the understanding that no discrimination is intended and no endorsement supplied. Due to constantly changing regulations, we assume no liability for suggestions. Additional products may be available for certain herbs grown in the field. Growers should always read and follow label instructions. Always follow label instructions regarding registered uses and note cautions. To avoid any phytotoxicity problems, spot test first before widespread use.

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